Complete Summary

TITLE

Pediatric asthma: hospital admission rate.

SOURCE(S)

AHRQ quality indicators. Guide to prevention quality indicators: hospital admission for ambulatory care sensitive conditions [version 2.1, revision 4]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Nov 24. 115 p.(AHRQ Pub; no. 02-R0203). [50 references]

Brief Abstract

DESCRIPTION

This measure is used to assess the number of admissions for pediatric asthma per 100,000 population.

As a Prevention Quality Indicator (PQI), pediatric asthma is not a measure of hospital quality, but rather one measure of outpatient and other health care.

Providers may reduce admission rates without actually improving quality by shifting care to an outpatient setting. Admission rates that are drastically below or above the average or recommended rates should be examined.

RATIONALE

Prevention is an important role for all health care providers. Providers can help individuals stay healthy by preventing disease, and they can prevent complications of existing disease by helping patients live with their illnesses. To fulfill this role, however, providers need data on the impact of their services and the opportunity to compare these data over time or across communities. Local, State, and Federal policymakers also need these tools and data to identify potential access or quality-of-care problems related to prevention, to plan specific interventions, and to evaluate how well these interventions meet the goals of preventing illness and disability.

While these indicators use hospital inpatient data, their focus is an outpatient health care. Except in the case of patients who are readmitted soon after discharge from a hospital, the quality of inpatient care is unlikely to be a significant determinant of admission rates for ambulatory care sensitive conditions. Rather, the Patient Quality Indicators (PQIs) assess the quality of the health care system as a whole, and especially the quality of ambulatory care, in preventing medical complications. As a result, these measures are likely to be of

the greatest value when calculated at the population level and when used by public health groups, State data organizations, and other organizations concerned with the health of populations.

These indicators serve as a screening tool rather than as definitive measures of quality problems. They can provide initial information about potential problems in the community that may require further, more in-depth analysis.

Asthma is the most common chronic disease in childhood and is one of the most frequent admitting diagnoses in children's hospitals. Most published studies combine admission rates for children and adults; therefore, areas may wish to examine this indicator together with the adult asthma indicator (see the related National Quality Measures Clearinghouse [NQMC] summary of the Agency for Healthcare Research and Quality [AHRQ] indicator Adult Asthma: Hospital Admission Rate).

Proper outpatient treatment may reduce admissions for asthma in the pediatric population, and lower rates represent better quality care.

PRIMARY CLINICAL COMPONENT

Pediatric asthma; hospital admission rates

DENOMINATOR DESCRIPTION

Population in Metropolitan Statistical Area (MSA) or county, age less than 18 years

NUMERATOR DESCRIPTION

Discharges, age less than 18 years, with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) principal diagnosis codes for asthma. Patients transferring from another institution, Major Diagnostic Category (MDC) 14 (pregnancy, childbirth, and puerperium), or MDC 15 (newborns and other neonates) are excluded.

Evidence Supporting the Measure

PRIMARY MEASURE DOMAIN

Access

SECONDARY MEASURE DOMAIN

Outcome

EVIDENCE SUPPORTING THE MEASURE

A clinical practice guideline or other peer-reviewed synthesis of the clinical evidence

One or more research studies published in a National Library of Medicine (NLM) indexed, peer-reviewed journal

Evidence Supporting Need for the Measure

NEED FOR THE MEASURE

Use of this measure to improve performance
Variation in quality for the performance measured

EVIDENCE SUPPORTING NEED FOR THE MEASURE

Agency for Healthcare Research and Quality (AHRQ). National healthcare disparities report. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Dec. 152 p.

Agency for Healthcare Research and Quality (AHRQ). National healthcare quality report. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Dec. 112 p.

AHRQ quality indicators. Guide to prevention quality indicators: hospital admission for ambulatory care sensitive conditions [version 2.1, revision 4]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Nov 24. 115 p.(AHRQ Pub; no. 02-R0203). [50 references]

State of Use of the Measure

STATE OF USE

Current routine use

CURRENT USE

Internal quality improvement
National health care quality reporting
Quality of care research

Application of Measure in its Current Use

CARE SETTING

Ambulatory Care
Community Health Care

PROFESSIONALS RESPONSIBLE FOR HEALTH CARE

Advanced Practice Nurses
Physician Assistants
Physicians

LOWEST LEVEL OF HEALTH CARE DELIVERY ADDRESSED

Counties or Cities

TARGET POPULATION AGE

Age less than 18 years, excluding newborns and other neonates

TARGET POPULATION GENDER

Either male or female

STRATIFICATION BY VULNERABLE POPULATIONS

Unspecified

Characteristics of the Primary Clinical Component

INCIDENCE/PREVALENCE

Rate (2002): 188.8 per 100,000 population.

In the United States (U.S.), asthma affects an estimated 4.8 million children and adolescents, and in 1993, it was the cause of 198,000 admissions and 342 deaths in persons aged 24 and younger.

EVIDENCE FOR INCIDENCE/PREVALENCE

AHRQ quality indicators. Guide to prevention quality indicators: hospital admission for ambulatory care sensitive conditions [version 2.1, revision 4]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Nov 24. 115 p.(AHRQ Pub; no. 02-R0203). [50 references]

ASSOCIATION WITH VULNERABLE POPULATIONS

- Black patients have been shown to have higher asthma admission rates, even when stratifying for income and age.
- Studies have shown that asthma hospitalization rates are associated with median household income (at the area level) and lack of insurance (at the individual level).
- Lin et al. showed that admission rates were higher in areas with higher poverty, minority populations, unemployment, and lower education levels.

EVIDENCE FOR ASSOCIATION WITH VULNERABLE POPULATIONS

AHRQ quality indicators. Guide to prevention quality indicators: hospital admission for ambulatory care sensitive conditions [version 2.1, revision 4]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Nov 24. 115 p.(AHRQ Pub; no. 02-R0203). [50 references]

BURDEN OF ILLNESS

Unspecified

UTILIZATION

Unspecified

COSTS

Unspecified

Institute of Medicine National Healthcare Quality Report Categories

IOM CARE NEED

Living with Illness

IOM DOMAIN

Effectiveness
Timeliness

Data Collection for the Measure

CASE FINDING

Both users and nonusers of care

DESCRIPTION OF CASE FINDING

Population in Metropolitan Statistical Area (MSA) or county, age less than 18 years

DENOMINATOR SAMPLING FRAME

Geographically defined

DENOMINATOR (INDEX) EVENT

Patient Characteristic

DENOMINATOR INCLUSIONS/EXCLUSIONS

Inclusions
Population in Metropolitan Statistical Area (MSA) or county, age less than 18 years

Exclusions
Unspecified

NUMERATOR INCLUSIONS/EXCLUSIONS

Inclusions
Discharges, age less than 18 years, with International Classification of Diseases, Ninth Revision, Clinical Modification (ICD-9-CM) principal diagnosis codes* for asthma

*Refer to Appendix A of the original measure documentation for ICD-9-CM codes.

Exclusions
Patients transferring from another institution, Major Diagnostic Category (MDC) 14 (pregnancy, childbirth, and puerperium), or MDC 15 (newborns and other neonates) are excluded.

DENOMINATOR TIME WINDOW

Time window is a single point in time

NUMERATOR TIME WINDOW

Encounter or point in time

DATA SOURCE

Administrative data

LEVEL OF DETERMINATION OF QUALITY

Not Individual Case

OUTCOME TYPE

Proxy for Outcome

PRE-EXISTING INSTRUMENT USED

Unspecified

Computation of the Measure

SCORING

Rate

INTERPRETATION OF SCORE

Better quality is associated with a lower score

ALLOWANCE FOR PATIENT FACTORS

Analysis by subgroup (stratification on patient factors, geographic factors, etc.)
Risk adjustment method widely or commercially available

DESCRIPTION OF ALLOWANCE FOR PATIENT FACTORS

Observed (raw) rates may be stratified by areas (Metropolitan Statistical Areas or counties), age groups, race/ethnicity categories, and sex.

Risk adjustment of the data is recommended using age and sex.

Application of multivariate signal extraction (MSX) to smooth risk adjusted rates is also recommended.

STANDARD OF COMPARISON

External comparison at a point in time
External comparison of time trends
Internal time comparison
Prescriptive standard

PRESCRIPTIVE STANDARD

Healthy People 2010 has set a goal to reduce the admission rate for asthma to 2.5 per 10,000 population for children under 5 years, and 7.7 per 10,000 population for people ages 5 to 65 years.

EVIDENCE FOR PRESCRIPTIVE STANDARD

AHRQ quality indicators. Guide to prevention quality indicators: hospital admission for ambulatory care sensitive conditions [version 2.1, revision 4]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Nov 24. 115 p.(AHRQ Pub; no. 02-R0203). [50 references]

Evaluation of Measure Properties

EXTENT OF MEASURE TESTING

Each potential quality indicator was evaluated against the following six criteria, which were considered essential for determining the reliability and validity of a quality indicator: face validity, precision, minimum bias, construct validity, fosters real quality improvement, and application. The project team searched Medline for articles relating to each of these six areas of evaluation. Additionally, extensive empirical testing of all potential indicators was conducted using the 1995-97 Healthcare Cost and Utilization Project (HCUP) State Inpatient Databases (SID) and Nationwide Inpatient Sample (NIS) to determine precision, bias, and construct validity. Table 1 in the original measure documentation summarizes the

results of the literature review and empirical evaluations on the Prevention Quality Indicators. Refer to the original measure documentation for details.

EVIDENCE FOR RELIABILITY/VALIDITY TESTING

AHRQ quality indicators. Guide to prevention quality indicators: hospital admission for ambulatory care sensitive conditions [version 2.1, revision 4]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Nov 24. 115 p.(AHRQ Pub; no. 02-R0203). [50 references]

Identifying Information

ORIGINAL TITLE

Pediatric asthma admission rate (PQI 4).

MEASURE COLLECTION

Agency for Healthcare Research and Quality (AHRQ) Quality Indicators

MEASURE SET NAME

Agency for Healthcare Research and Quality (AHRQ) Prevention Quality Indicators

DEVELOPER

Agency for Healthcare Research and Quality

INCLUDED IN

National Healthcare Quality Report (NHQR)

ADAPTATION

This indicator was originally developed by Billings and colleagues in conjunction with the United Hospital Fund of New York.

PARENT MEASURE

Unspecified

RELEASE DATE

2001 Oct

REVISION DATE

2004 Nov

MEASURE STATUS

This is the current release of the measure.

This measure updates a previous version: AHRQ quality indicators. Guide to prevention quality indicators: hospital admission for ambulatory care sensitive conditions [version 2.1, revision 3]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Jan 9. Various p. (AHRQ Pub; no. 02-R0203).

SOURCE(S)

AHRQ quality indicators. Guide to prevention quality indicators: hospital admission for ambulatory care sensitive conditions [version 2.1, revision 4]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Nov 24. 115 p.(AHRQ Pub; no. 02-R0203). [50 references]

MEASURE AVAILABILITY

The individual measure, "Pediatric Asthma Admission Rate (PQI 4)," is published in "AHRQ Quality Indicators. Guide to Prevention Quality Indicators: Hospital Admission for Ambulatory Care Sensitive Conditions." This document is available in Portable Document Format (PDF) and a zipped Word(R) file from the Quality Indicators page at the Agency for Healthcare Research and Quality (AHRQ) Web site.

For more information, please contact the QI Support Team at support@qualityindicators.ahrq.gov.

COMPANION DOCUMENTS

The following are available:

- AHRQ quality indicators. Prevention quality indicators: software documentation [version 2.1, revison 4] - SAS. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Nov 24. 36 p. (AHRQ Pub; no. 02-R0202). This document is available from the Agency for Healthcare Research and Quality (AHRQ) Web site.
- AHRQ quality indicators. Prevention quality indicators: software documentation [version 2.1, revison 4] - SPSS. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 Nov 24. 32 p. (AHRQ Pub; no. 02-R0207). This document is available from the AHRQ Web site.
- Remus D, Fraser I. Guidance for using the AHRQ quality indicators for hospital-level public reporting or payment. Rockville (MD): Agency for Healthcare Research and Quality; 2004 Aug. 24 p. This document is available from the AHRQ Web site.
- HCUPnet, Healthcare Cost and Utilization Project. [internet]. Rockville (MD): Agency for Healthcare Research and Quality (AHRQ); 2004 [Various pagings]. HCUPnet is available from the AHRQ Web site.
- UCSF-Stanford Evidence-based Practice Center. Davies GM, Geppert J, McClellan M, et al. Refinement of the HCUP quality indicators. Rockville (MD):

Agency for Healthcare Research and Quality (AHRQ); 2001 May. (Technical review; no. 4). This document is available from the AHRQ Web site.

NQMC STATUS

This NQMC summary was completed by ECRI on December 19, 2002. The information was verified by the Agency for Healthcare Research and Quality on January 9, 2003. This NQMC summary was updated by ECRI on April 6, 2004 and again on February 18, 2005. The information was verified by the measure developer on April 22, 2005.

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